

Applicant: Rauno Rantanen
Application No.: 10/501,624
Response to Office action mailed Aug. 29, 2006
Response filed November 24, 2006

Claim Listing

1-20. (cancelled)

21. (currently amended) An apparatus in a paper or board machine for feeding a treating agent onto a continuous moving paper or board web surface comprising:

a feed apparatus having at least one feed chamber, the feed chamber having at least one inlet opening for the treating agent and at least one outlet opening for the treating agent;

at least one nozzle plate having portions forming a plurality of holes which communicate with the at least one outlet opening of said at least one feed chamber; wherein the plurality of holes are arranged to form downwards moving jets of treating agent;

at least one downwards sloping inclined surface positioned to receive the downwards moving jets of treating agent from the plurality of holes in the at least one nozzle plate, the at least one inclined surface forming a downwards sloping flow path on which an even laminar treating agent flow may be formed, the at least one inclined surface having portions forming a lowermost edge; and

an applicator rod forming a cylindrical surface, the applicator rod mounted for rotation so that the cylindrical surface also rotates and positioned such that the lowermost edge of the at least one inclined surface rests against the cylindrical surface, wherein the cylindrical surface is in contact with the continuous moving paper or board web surface and forms a second inclined surface such that the continuous moving paper or board web surface is positioned beneath the applicator rod.

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22. (previously presented) An apparatus for feeding a treating agent onto a moving surface having a defined direction of movement and defining a width, the apparatus comprising:

- a feed apparatus having at least one feed chamber, the feed chamber having at least one inlet opening for the treating agent and at least one outlet opening for the treating agent;

- at least one nozzle plate having portions forming a plurality of holes which communicate with the at least one outlet opening of said at least one feed chamber; wherein the plurality of holes are arranged to form downwards moving jets of treating agent;

- a first downwards sloping inclined surface positioned to receive the downwards moving jets of treating agent from the plurality of holes in the at least one nozzle plate, the at least one first inclined surface forming a downwards sloping flow path on which an even laminar treating agent flow may be formed, the at least one first inclined surface having portions forming a lowermost edge;

- a second inclined surface positioned so the lowermost edge of the first inclined surface rests on the second inclined surface so the second inclined surface can receive a laminar treating agent flow from the first inclined surface, the second inclined surface mounted for motion transverse to the defined direction of motion of the moving surface, wherein the second inclined surface has a length, transverse to the direction of movement of the moving surface, which is at least 1.5 times greater than the width of the moving surface; and
- actuating members connected to the second inclined surface and arranged to move the second inclined surface in the direction transverse to the direction of movement of the moving surface, so that a portion of the second inclined plate which is to one side of the moving surface can be cleaned.

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23. (currently amended) An apparatus for feeding a treating agent onto a moving surface comprising:

a feed apparatus having at least one feed chamber, the feed chamber having at least one inlet opening for the treating agent and at least one outlet opening for the treating agent;

at least one nozzle plate having portions forming a plurality of holes which communicate with the at least one outlet opening of said at least one feed chamber;

wherein the plurality of holes are arranged to form downwards moving jets of treating agent;

a first inclined surface positioned to receive the downwards moving jets of treating agent from the plurality of holes in the at least one nozzle plate, the at least one first inclined surface forming a downwards sloping flow path on which an even laminar treating agent flow may be formed, the at least one first inclined surface having portions forming a lowermost edge;

a second inclined surface positioned so the lowermost edge of the first inclined surface rests on the second inclined surface so the second inclined surface can receive a laminar treating agent flow from the first inclined surface, the second inclined surface having a lower end positioned spaced from or touching the moving surface; and

a wall extending upwardly from the lower end of the second inclined surface forming a closed space, the closed space connected to a source of vacuum, the wall having a plurality of holes positioned behind the second inclined surface to suck an air cushion carried by the moving surface into the closed space.

24-32. (canceled)

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33.(currently amended) An apparatus in a paper or board machine for feeding a treating agent onto a continuous moving paper or board web comprising:

a feed apparatus having at least one feed chamber, the feed chamber having at least one inlet opening for the treating agent and at least one outlet opening for the treating agent;

at least one nozzle plate having portions forming a plurality of holes which communicate with the at least one outlet opening of said at least one feed chamber; wherein the plurality of holes are arranged to form downwards moving jets of treating agent;

at least one downwards sloping inclined surface positioned to receive the downwards moving jets of treating agent from the plurality of holes in the at least one nozzle plate, the at least one inclined surface forming a downwards sloping flow path on which an even laminar treating agent flow may be formed, the at least one inclined surface having portions forming a lowermost edge; and

an applicator rod forming a cylindrical surface, the applicator rod mounted for rotation so that the cylindrical surface also rotates and positioned such that the lowermost edge of the at least one inclined surface rests against the cylindrical surface, wherein the cylindrical surface is in contact with the continuous moving paper or board web.